In re Patent Application of:
MARINET
Serial No. **09/805,265**
Filing Date: **March 13, 2001**
_____/

In the Claims:

Claims 1-10 (Canceled).

11. (Previously Presented) A pseudo-random number generator comprising:

a first generator for generating a sawtooth waveform signal having a first frequency;

a second generator for generating a pulse signal having a second frequency;

a sampling circuit connected to said first and second generators for sampling the sawtooth waveform signal using the pulse signal for generating a sample signal of the sawtooth waveform at the second frequency; and

a coding circuit connected to said sampling circuit for generating pseudo-random numbers based on the sample signal.

12. (Previously Presented) A pseudo-random number generator according to Claim 11, wherein said coding circuit codes an amplitude of the sample signal so that the pseudo-random numbers are generated based on the coded amplitude.

13. (Previously Presented) A pseudo-random number generator according to Claim 11, wherein the pseudo-random numbers are output in series.

14. (Previously Presented) A pseudo-random number generator according to Claim 11, wherein the pseudo-random numbers are output in parallel.

15. (Previously Presented) A pseudo-random number generator according to Claim 12, wherein said coding circuit comprises a comparator for generating a signal representative of a binary value 1 or 0 based upon whether the amplitude of the sample signal is greater than or less than a reference value.

16. (Previously Presented) A pseudo-random number generator according to Claim 15, wherein the reference value is equal to a median value of the sawtooth waveform signal.

17. (Previously Presented) A pseudo-random number generator according to Claim 15, wherein the reference value is equal to a mean value of the amplitude of the sample signal.

18. (Previously Presented) A pseudo-random number generator according to Claim 17, further comprising an RC circuit having an input for receiving the sample signal from said sampling circuit and an output for generating the mean value to said coding circuit.

19. (Previously Presented) A pseudo-random number generator according to Claim 12, wherein said coding circuit comprises an analog-to-digital converter which supplies a binary code of N digits in parallel, representative of the amplitude of the sample signal.

20. (Previously Presented) A pseudo-random number generator according to Claim 11, wherein said first generator

comprises:

a capacitor;

switching means for switching a current for charging and discharging said capacitor; and

switching control means for controlling the switching of the current to obtain a succession of charge and discharge cycles of said capacitor.

21. (Previously Presented) A pseudo-random number generator according to Claim 20, wherein said switching control means comprises:

two comparators each comparing a charging voltage of said capacitor to a reference value and generating a signal when the charging voltage reaches the reference value; and

a latch for storing the signal generated successively by each comparator.

22. (Previously Presented) A pseudo-random number generator according to Claim 20, wherein said switching means comprises:

a current generator for supplying the current;

a plurality of current mirrors for reproducing the current to enable said capacitor to be supplied in both current flow directions; and

a switch controlled by said switching control means for selecting direction of current flow in said capacitor.

23. (Previously Presented) A pseudo-random number generator according to Claim 11, wherein said second generator comprises a ring oscillator having an odd number of stages.

24. (Previously Presented) A pseudo-random number generator according to Claim 23, wherein each stage of said second generator comprises:

an inverter circuit comprising a first transistor and a second transistor connected thereto;

a third transistor connected to said first transistor, and a fourth transistor connected to said second transistor;

a fifth transistor configured as a diode for controlling a gate voltage of said third transistor, and a sixth transistor configured as a diode for controlling a gate voltage of said fourth transistor; and

a current generator for supplying a current to said fifth and sixth transistors.

25. (Previously Presented) A pseudo-random number generator comprising:

a first generator for generating a sawtooth waveform signal having a first frequency;

a second generator for generating a pulse signal having a second frequency;

a sampling circuit connected to said first and second generators for sampling the sawtooth waveform signal using the pulse signal for generating a sample signal of the sawtooth waveform at the second frequency; and

a coding circuit connected to said sampling circuit for coding an amplitude of the sample signal by generating a signal representative of a binary value 1 or 0 based upon whether the amplitude of the sample signal is greater than or

less than a reference value, and pseudo-random numbers being generated based on the coded amplitude.

26. (Previously Presented) A pseudo-random number generator according to Claim 25, wherein the pseudo-random numbers are output in series.

27. (Previously Presented) A pseudo-random number generator according to Claim 25, wherein the pseudo-random numbers are output in parallel.

28. (Previously Presented) A pseudo-random number generator according to Claim 25, wherein said coding circuit comprises a comparator.

29. (Previously Presented) A pseudo-random number generator according to Claim 25, wherein the reference value is equal to a median value of the sawtooth waveform signal.

30. (Previously Presented) A pseudo-random number generator according to Claim 25, wherein the reference value is equal to a mean value of the amplitude of the sample signal.

31. (Previously Presented) A pseudo-random number generator according to Claim 25, wherein said coding circuit comprises an analog-to-digital converter which supplies a binary code of N digits in parallel, representative of the amplitude of the sample signal.

32. (Previously Presented) A pseudo-random number generator according to Claim 25, wherein said first generator comprises:

a capacitor;

a switching circuit for switching a current for charging and discharging said capacitor; and

a switching control circuit for controlling the switching of the current to obtain a succession of charge and discharge cycles of said capacitor.

33. (Previously Presented) A pseudo-random number generator according to Claim 25, wherein said second generator comprises a ring oscillator having an odd number of stages.

34. (Previously Presented) A pseudo-random number generator comprising:

a first generator for generating a sawtooth waveform signal having a first frequency, said first generator comprising

a capacitor,

a switching circuit for switching a current for charging and discharging said capacitor, and

a switching control circuit for controlling the switching of the current to obtain a succession of charge and discharge cycles of said capacitor;

a second generator comprising a ring oscillator for generating a pulse signal having a second frequency;

a sampling circuit connected to said first and second generators for sampling the sawtooth waveform signal using the pulse signal for generating a sample signal of the

sawtooth waveform at the second frequency; and

a coding circuit connected to said sampling circuit for generating pseudo-random numbers based on the sample signal.

35. (Previously Presented) A pseudo-random number generator according to Claim 34, wherein said coding circuit codes an amplitude of the sample signal so that the pseudo-random numbers are generated based on the coded amplitude.

36. (Previously Presented) A pseudo-random number generator according to Claim 35, wherein said coding circuit comprises a comparator for generating a signal representative of a binary value 1 or 0 based upon whether the amplitude of the sample signal is greater than or less than a reference value.

37. (Previously Presented) A pseudo-random number generator according to Claim 36, wherein the reference value is equal to a median value of the sawtooth waveform signal.

38. (Previously Presented) A pseudo-random number generator according to Claim 36, wherein the reference value is equal to a mean value of the amplitude of the sample signal.

39. (Previously Presented) A pseudo-random number generator according to Claim 35, wherein said coding circuit comprises an analog-to-digital converter which supplies a binary code of N digits in parallel, representative of the

amplitude of the sample signal.

40. (Previously Presented) A method for generating pseudo-random numbers comprising:

generating a sawtooth waveform signal having a first frequency;

generating a pulse signal having a second frequency;

sampling the sawtooth waveform signal using the pulse signal for generating a sample signal of the sawtooth waveform at the second frequency; and

coding the sample signal for generating the pseudo-random numbers.

41. (Previously Presented) A method according to Claim 40, wherein coding comprises coding an amplitude of the sample signal so that the pseudo-random numbers are generated based on the coded amplitude.

42. (Previously Presented) A method according to Claim 41, wherein coding comprises generating a signal representative of a binary value 1 or 0 based upon whether the amplitude of the sample signal is greater than or less than a reference value.

43. (Previously Presented) A method according to Claim 42, wherein the reference value is equal to a median value of the sawtooth waveform signal.

44. (Previously Presented) A method according to Claim 42, wherein the reference value is equal to a mean value

of the amplitude of the sample signal.